ALARIS® MEDICAL SYSTEMS

Asena™ CC

ASENA™ CC - A Member of the ASENA™ Infusion System

Directions For Use - English

Contents

	Page
Introduction	1
Features of the ASENA™ CC	2 - 3
Operating Precautions	4
Getting Started	5
Basic Features	6 - 8
Alarms and Warnings	9
Configured Options	10 - 11
Specifications	12 - 13
Maintenance	14
Occlusion Pressure Limits	15
Self Test Routine	16
RS232/Nursecall Specification	16
Trumpet Curves	17
Service Contacts	18
Warranty	19
Declaration of Conformity	19
Order Form	20

Introduction

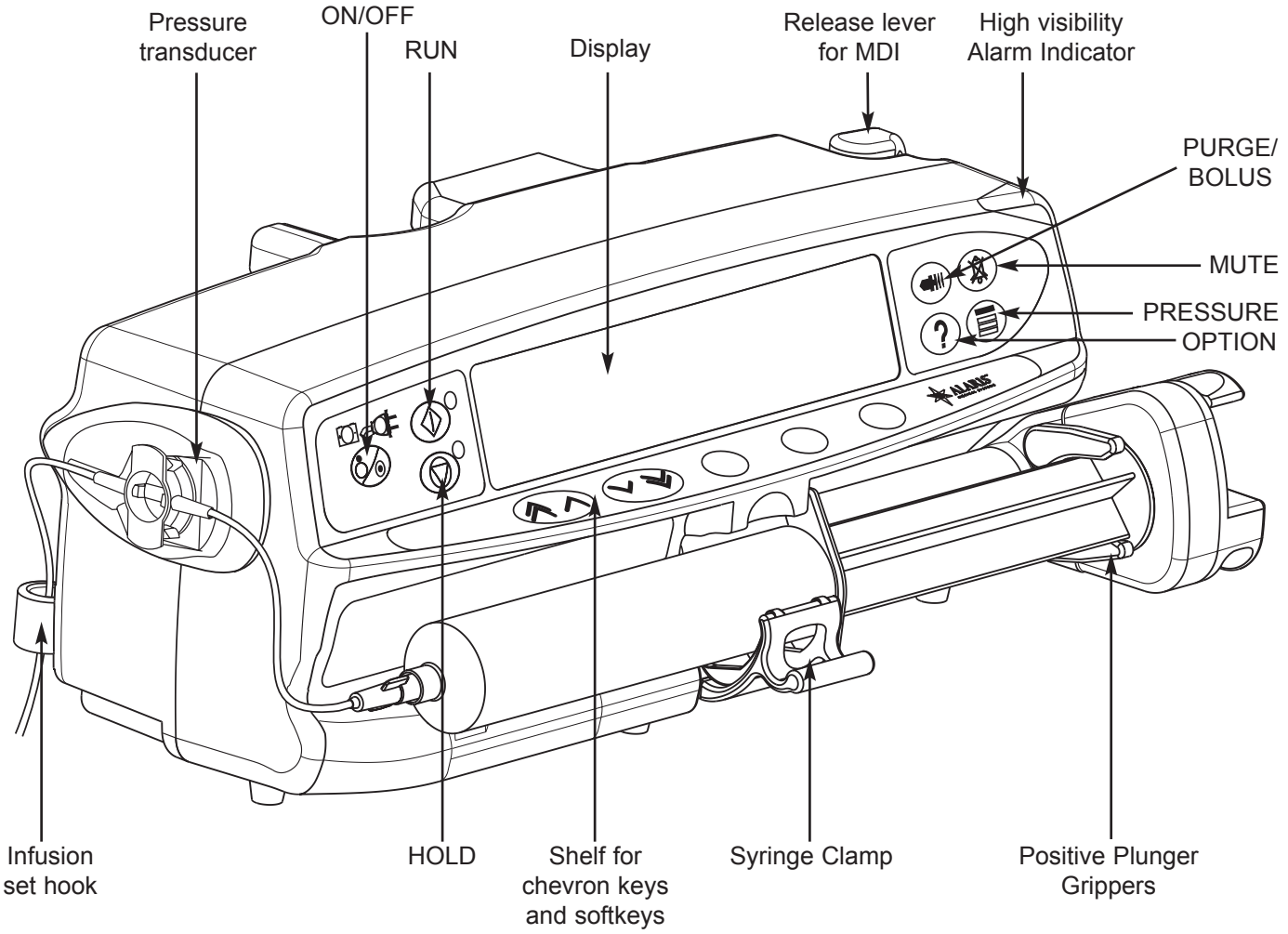
The ALARIS® ASENA™ CC is a fully featured high end variable pressure syringe pump suitable for critical care applications.

The ASENA™ CC functions with a wide range of standard, single-use, disposable Luer-lock syringes. It accepts syringe sizes from 5ml to 50ml. A full list of compatible syringes can be found on page 13.

- *Simple to set up and easy to operate.*
- *Large graphics format display including pressure trending.*
- *Medical Device Interface (MDI) - a unique mounting mechanism.*
- *Rate Range from 0.1 to 1200ml/h.*
- *In-line pressure monitoring from 0 to 1000 mmHg.*
- *24 hour logging of volume.*
- *Event logging records operation of pump.*
- *Advanced Communications and Nursecall interfaces.*
- *Configurable drug protocols for simplified drug dosing.*

Visit our website: **www.alarismed.com**

Features of the ALARIS® ASENA™ CC - Front View



Controls and Indicators

ON/OFF - Press once to switch the pump ON. Press and hold down for 3 seconds to switch the pump OFF.

RUN button - Press to start the infusion. The green LED will flash during infusion.

HOLD button - Press to put the infusion on hold. The amber LED will be lit while on hold.

MUTE - Press to silence alarms.

PURGE/BOLUS - Press to purge the extension line during the set-up while the pump is on hold or to bolus at an accelerated rate while an infusion is running.

OPTION button - Press to access optional features (see pages 7 and 8).

PRESSURE - Use this button to display the pumping pressure and alarm level.

CHEVRONS - Double or single for faster/slower increase or decrease of values shown on display.

BLANK SOFTKEYS - Use in conjunction with the prompts shown on the display.

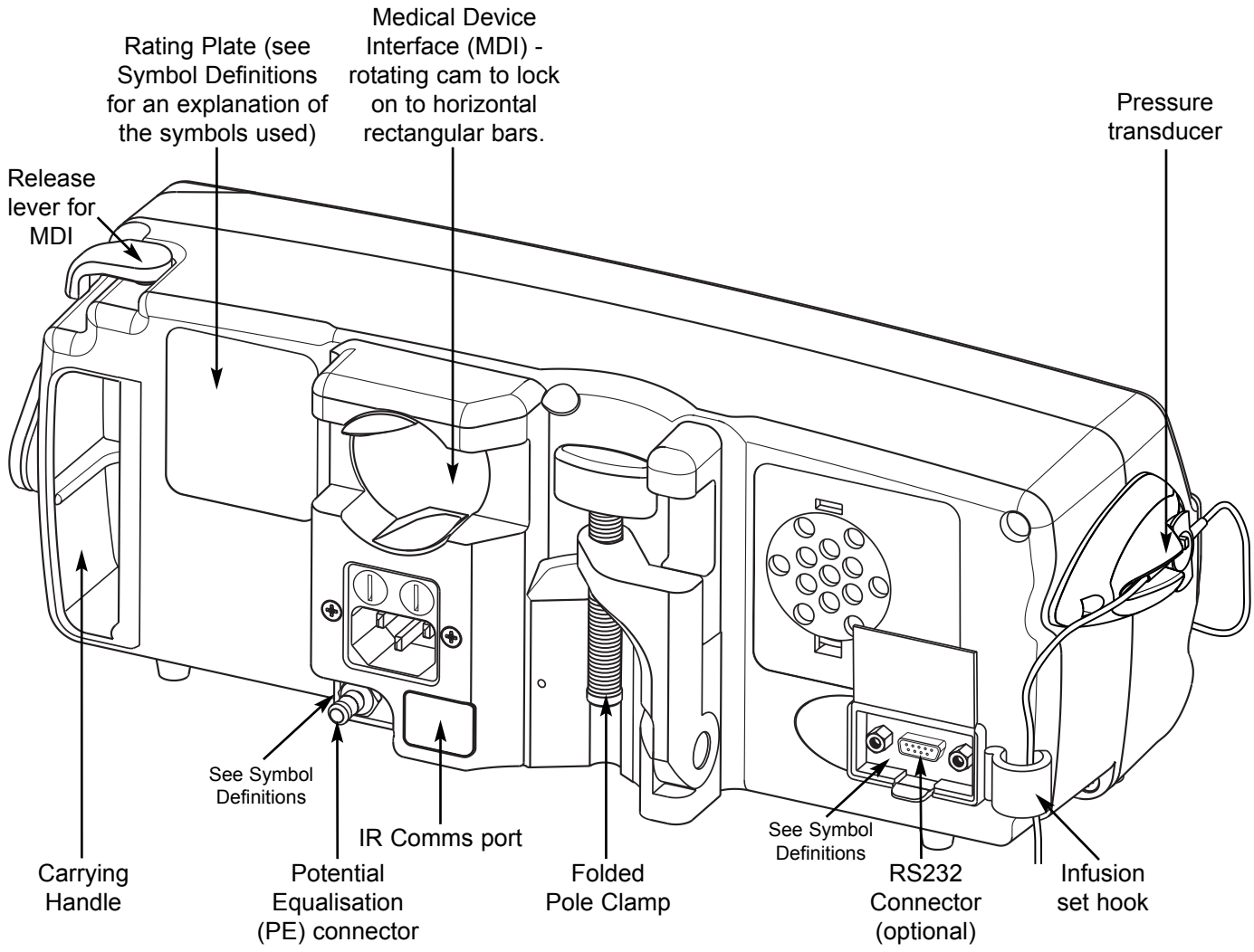
BATTERY - When illuminated the pump is running on the internal battery. When flashing the battery power is low with less than 30 minutes of use remaining.

AC POWER - When illuminated the unit is connected to an AC power supply and the battery is being charged.

00:00

TIME REMAINING DISPLAY - Indicates time before syringe will require replacing.

Features of the ALARIS® ASENA™ CC - Rear View


Rating Plate (see Symbol Definitions for an explanation of the symbols used)
Medical Device Interface (MDI) - rotating cam to lock on to horizontal rectangular bars.
Pressure transducer
Release lever for MDI
See Symbol Definitions
IR Comms port
See Symbol Definitions
Carrying Handle
Potential Equalisation (PE) connector
Folded Pole Clamp
RS232 Connector (optional)
Infusion set hook

Quick Start Guide

1. Press to turn the pump on.
2. **CLEAR SETUP?** - **NO** retains previous data. **YES** clears stored data.
3. Load syringe.
4. Confirm syringe.
5. INFUSION RATE - Change rate if necessary using ⏫/⏬.
6. PURGE - Press followed by the **PURGE** softkey.
7. Connect patient to pump. Insert pressure disc into pressure transducer.
8. START - Press .

Symbol Definitions

Attention (Consult accompanying documents)

Potential Equalisation (PE) Connector

RS232/Nursecall Connector (Optional)

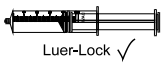
Type CF Equipment (Degree of protection against electrical shock)

IPX1 ***Protected against vertically falling drops of water***

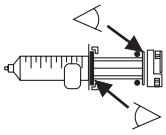
Alternating Current

CE 0086 ***Device complies with the requirements of the EC Directive 93/42/EEC. Registered with the CE Mark.***

Date of Manufacture

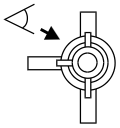


This ALARIS® syringe pump has been calibrated for use with single-use disposable syringes. To ensure correct and accurate operation, only use Luer-Lock versions of the syringe make specified on the pump or described in this manual. Use of non-specified syringes or administration sets may impair the operation of the pump and the accuracy of the infusion.

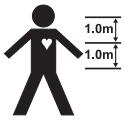


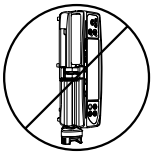
Uncontrolled flow or syphoning may result if the syringe is located incorrectly in the pump, or if it is removed from the pump before the extension line is properly isolated from the patient. Isolation may include closing a tap in the patient line or activating a flow stop clamp.

Secure the infusion line to the pump using the infusion set hook at the rear of the pump. This provides protection against accidental dislodging of the syringe from the pump.



When combining several apparatus and/or instruments with administration sets and other tubing, for example via a 3 way tap, the performance of the pump may be impacted and should be monitored closely.

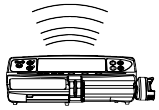




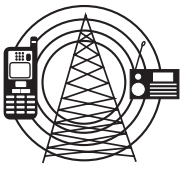
The pump must be mounted within 1.0m above or below the patient's heart. Do not mount the pump in a vertical position with the syringe pointing upwards as this could lead to an infusion of air which may be in the syringe. To protect against the introduction of air the user should regularly monitor the progress of the infusion, syringe, extension line and patient connections and follow the priming procedure specified herein.

This is a positive pressure device designed to achieve very accurate fluid administration by automatically compensating for resistance encountered in the infusion system.

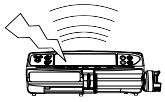
The pumping pressure alarm system is not designed to provide protection against, or detection of, infiltration conditions which can occur at low pressures.



Several alarm conditions detected by this pump will stop the infusion and generate audible alarms and lights. Users must perform regular checks to ensure that the infusion is progressing correctly and no alarms are operating.

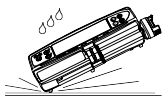


This instrument is protected against the effects of external interference, including high energy radio frequency emissions, magnetic fields and electrostatic discharge (for example, as generated by electrosurgical and cauterising equipment, large motors, portable radios, cellular telephones etc.).



In some circumstances the unit may be affected by an electrostatic discharge through air at levels close to or above 15kv; or by radio frequency radiation close to or above 10v/m. If the unit is affected by this external interference the unit will fail safe or reset (after which a call back alarm will occur). Should false alarm conditions be encountered, either remove the source of the interference, or regulate the infusion by another appropriate means.

This unit emits a certain level of electromagnetic radiation which is within the levels specified by IEC60601-2-24 and IEC60601-1-2. If however the unit interacts with other equipment, measures should be taken to minimise the effects, for instance by repositioning or relocation.



If this instrument is dropped, subjected to excessive moisture, fluid spillage, humidity or high temperature, or otherwise suspected to have been damaged, remove it from service for inspection by a qualified service engineer. When transporting or storing the pump, use original packaging where possible, and adhere to temperature, humidity and pressure ranges stated on page 12 and on the outer packaging.

An explosion hazard exists if the instrument is used in the presence of flammable anaesthetics. Exercise care to locate the unit away from any such hazardous sources. An electrical shock hazard exists if the units casing is opened or removed. Refer all servicing to qualified service personnel.

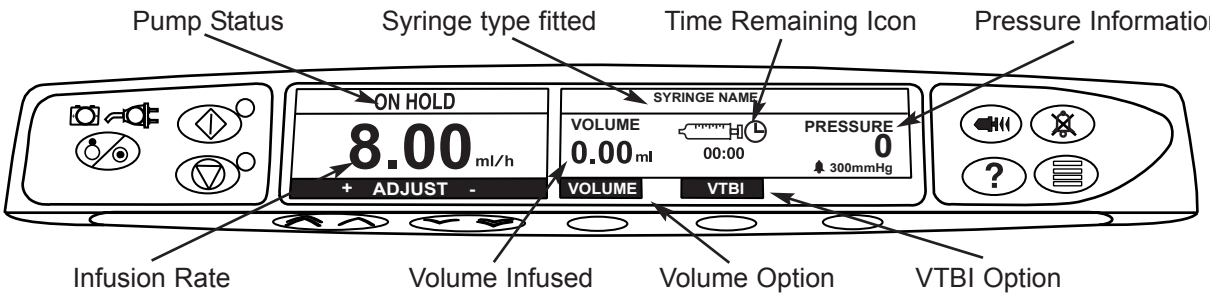
When connected to an external power source, a three-wire (Live, Neutral, Earth) supply must be used. If the integrity of the external protective conductor in the installation or its arrangement is in doubt, the equipment should be operated from the battery.

A comprehensive Technical Service Manual containing circuit descriptions, servicing and testing information is available for this pump. It can be ordered from your ALARIS Medical Systems® authorised distributor, part number 1000PB01120.

All illustrations used in this manual show typical settings and values which may be used in setting up the functions of the pump. These settings and values are for illustrative use only. The complete range of settings and values are specified on page 12. Where stated, a minimum infusion rate refers to a nominal rate of 1.0ml/h, and an intermediate infusion rate refers to a nominal rate of 5.0ml/h. The complete range of infusion rates are shown on page 12.

Getting Started

Front Panel and Main Display



Installation

Check that the pump is complete, undamaged and that the voltage rating specified on the base plate is compatible with your AC power supply. Items supplied with this ALARIS Medical Systems® syringe pump are:

- ***ALARIS® ASENA™ CC syringe pump***
- ***Directions For Use***
- ***AC Power Cable (as requested)***
- ***Protective Packaging***

Connect the unit to the AC power supply for 2½ hours to ensure that the internal battery is fully charged prior to use.

Should the pump fail to perform correctly, replace in its original protective packaging and contact a qualified service engineer for investigation.

A pole clamp is fitted to the rear of the unit and will provide secure fixing to standard vertical I.V. poles of a diameter of between 15 and 40 mm. It should be folded away when not in use.

There is a Medical Device Interface (MDI) at the rear of the pump used for mounting the pump onto horizontal rectangular bars, for instance the ALARIS® ASENA™ Docking Station. Holding the pump horizontally push the pump firmly on to the bar. Ensure that the pump clicks securely into position on the bar. To release, push the release lever and pull the pump forwards.

Important: Do not mount the unit with the AC power inlet or the syringe pointing upwards. This could affect the electrical safety in the event of a fluid spill or lead to the infusion of air which may be in the syringe.

The unit will automatically operate from its internal battery if the pump is switched on without being connected to the AC power supply.

Loading a Syringe

Place the pump on a stable horizontal surface or secure as described above.

Prepare, load and prime the single-use disposable syringe and extension line using standard aseptic techniques.

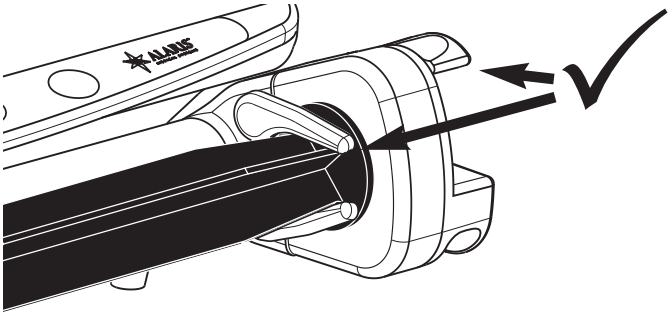
Important: Only use a syringe of the type stated on the pump or in this manual. Using an incorrect syringe could adversely affect the accuracy of the infusion and the performance of the pump.

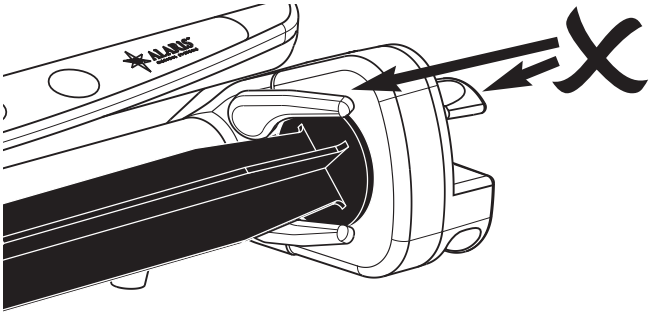
When initially loading the syringe, allow for the volume of fluid contained in the extension line and retained in the syringe at the end of infusion as this "dead-space" will not be infused.

1. Squeeze the finger grips together on the plunger holder and slide the mechanism to the right. Pull the syringe clamp forwards and down.
2. Insert the syringe ensuring that the finger flanges are located in the slots on the syringe holder.
3. Lift the syringe clamp until it locks against the syringe barrel.
4. Squeeze the finger grips on the plunger holder and slide the mechanism to the left until it reaches the plunger end.
5. Release the finger grips. Ensure that the plunger grippers are securing the plunger in place and the finger grip returns to its original position.

Important: Secure the infusion line using the infusion set hook at the rear of the pump. This provides protection against accidental dislodging of the syringe from the pump.

Important: Ensure that both plunger grippers are fully locked onto the plunger flange and the upper finger grip has returned to its original position.





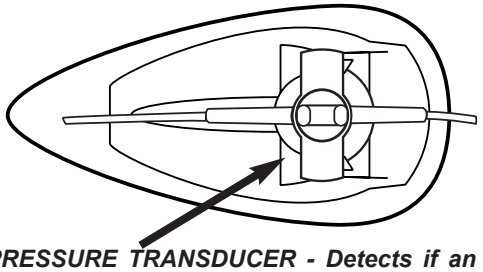
Starting the Pump

1. Connect the pump to an AC power supply using the AC power cable. Press the ⏻ button. The pump will run a short self-test. Ensure that two beeps are activated during this test. Check the display test pattern and ensure that no coloured rows are missing. Finally check that the displayed time and date are correct.

   Note: A warning - **REPAIRING LOGS**, may be displayed if event log information was not completely stored at the previous power down.
2. **CLEAR SETUP?** - Answering **NO** will retain all previous rate and volume settings. **YES** will automatically reset the rate and volume settings to zero.
3. LOAD SYRINGE - Load the syringe according to the procedure in this manual.
4. CONFIRM SYRINGE - Check that the syringe type and size being used matches the display. If required, the make of syringe can be changed by pressing the **TYPE** button. Press **CONFIRM** when the correct type and size are shown**.**
5. INFUSION RATE - Check the rate shown if old patient data has been retained and change the rate if necessary using the ⏫/⏬ keys.
6. PURGE (if required) - Press the button and then press and hold the **PURGE** softkey until fluid flows and the purging of the syringe extension line is complete. Release the softkey. The volume used during purging will be displayed.

Important: Ensure all air has been primed out of the IV infusion set, before starting the infusion.

7. CONNECT TO PATIENT - Connect the extension line to the patient access device. Insert the pressure disc into the pressure transducer.



Note: PRESSURE TRANSDUCER - Detects if an infusion line with a pressure disc is fitted. The pressure transducer will measure positive infusion line pressures.

Note: Warning - To remove or insert pressure disc from or into pressure transducer assembly, insert finger into the recess in the pressure disc and pull forward or push back with care. DO NOT PULL THE INFUSION LINE TO REMOVE OR TO INSERT THE PRESSURE DISC.

FULLY DEDICATED ASENA™ CC - to start an infusion a pressure disc must be fitted.

SEMI DEDICATED ASENA™ CC - to start an infusion with Drugs and Dosing set a pressure disc must be fitted.

8. START - Press ◈ to commence operation. **INFUSING** will be displayed. The AMBER STOP light will be replaced by the flashing GREEN START light to indicate that the pump is in operation.
9. STOP - Press ⓥ to halt the operation. **ON HOLD** will be displayed. The amber light will replace the green light.

Purge

The button allows the delivery of a limited volume of fluid in order to purge the extension line prior to being connected to a patient or after changing a syringe.

1. Stop the pump and press the button.
2. Press and hold the **PURGE** softkey until fluid flows and the purging of the syringe extension line is complete. The volume used during purging will be displayed, but it is not added to the volume infused.
3. When purging is complete release the **PURGE** softkey. Press the **QUIT** softkey to exit back to the main display.

Important: The pump will not purge if the rate lock has been enabled. During PURGE the pressure limit alarms are temporarily increased to their maximum level.

Bolus Infusion

The bolus feature can be used at the start of an infusion or during an infusion.

If the bolus volume reaches the set limit the bolus will stop and the pump will revert to infuse at the set rate. If the volume to be infused is reached during a bolus, the volume to be infused (VTBI) complete alarm will sound and the pump will revert to its previous state. Press ⓧ to stop the alarm or **CANCEL** to acknowledge the alarm and continue normal rate infusion.

1. During infusion press the button once to display the bolus screen.
2. Use the ⏫/⏬ keys to set the bolus rate required.
3. To deliver the bolus press and hold the **BOLUS** softkey. During the bolus the volume being infused is displayed.
4. When the desired bolus has been delivered, release the softkey. The bolus volume is added to the total volume infused.

Important: A bolus cannot be administered if the rate lock is enabled, if the feature is disabled in General Options or when using a selected Drug Protocol. During BOLUS the pressure limit alarms are temporarily increased to their maximum level.

Rate Lock

The rate lock feature is enabled/disabled within the General Options of this pump.

When the infusion rate has been set and the infusion started (or following a bolus infusion) the rate lock prompt will appear on the main display. With the rate lock enabled the rate cannot be altered if the pump is stopped. The rate lock disables the bolus and purge operations.

1. To select the rate lock function press the **YES** softkey. Press the **NO** softkey if the rate lock is not required.

While the rate lock is active powering down the pump is prevented. To power down, first unlock the rate as described below.

To disable the rate lock if selected:

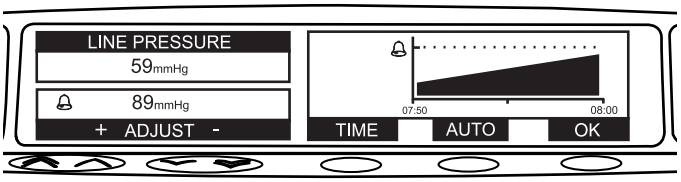
1. Press the **?** button to access the options menu.
2. Select the **UNLOCK RATE** option using the ⏫/⏬ keys and press the **OK** softkey.

To enable the rate lock if not selected:

1. Press the **?** button to access the options menu.
2. Select **RATE LOCK** and press the **OK** softkey.

Pressure Level with pressure set fitted

1. To check and adjust the pressure level press the ☰ button. The display will change to show a trend graph displaying the pressure alarm level and the current pressure level.
2. Press the ⩓/⩔ keys to increase or decrease the pressure alarm level. The new level will be indicated on the display.
3. The Auto Pressure feature may be used when a stable pressure has been achieved over a short period of infusion. If Auto Pressure has been enabled (see General Options) the automatic pressure alarm level is calculated and set by pressing the **AUTO** softkey. The alarm level will be based on a typical margin above the current operating pressure.
4. The time scale of the trend graph may be modified by pressing the **TIME** softkey until the required time scale is displayed.
5. Press **OK** to exit the pressure screen.



Pressure Level without pressure set fitted (not applicable when FULLY DEDICATED)

1. To check and adjust the pressure level press the ☰ button. A bar graph will be displayed showing the pressure alarm level and the current pressure level.
2. Press the ⩓/⩔ keys to increase or decrease the alarm level. The new level will be indicated on the display.
3. Press **OK** to exit the screen.

Clear Volume

This option enables the volume infused to be cleared.

1. Press the **VOLUME** softkey to display the **CLEAR VOLUME** option.
2. Press the **YES** softkey to clear the volume. Press the **NO** softkey to retain the volume.

Volume to be Infused (VTBI)

This option allows you to set a specific volume to be infused. Rate at the end of this VTBI can also be set, selecting from stop, KVO, or continuous infusion at the set rate.

1. Press the **VTBI** softkey to select the volume to be infused option.
2. Enter the volume to be infused using the ⩓/⩔ keys and press the **OK** softkey.
3. Select the rate at the end of the VTBI using the ⩓/⩔ keys to scroll through the on-screen choices. The default is stop.
4. Press **OK** to enter the rate and exit the VTBI menu.

? Set VTBI over Time

This option allows you to specify a VTBI and delivery time. The rate necessary to deliver the required volume within the specified time is calculated and displayed.

1. Stop the infusion. Press the **?** button to access the options menu.
2. Select the **SET VTBI OVER TIME** option using the ⩓/⩔ keys and press the **OK** softkey.
3. Adjust the volume to be infused using the ⩓/⩔ keys. When the desired volume has been reached press the **OK** softkey.
4. Enter the time over which the volume is to be infused. The infusion rate will automatically be calculated. Press the **OK** softkey to enter the value.
5. Select the rate at VTBI end from the list using the ⩓/⩔ keys and press the **OK** softkey. The default is STOP.

? 24 Hour Log

This option allows the 24 hour log of volume infused to be reviewed.

1. Press the **?** button to access the options menu.
2. Select the **24H LOG** option using the ⩓/⩔ keys and press the **OK** softkey.
3. Press the **NEXT** softkey to access the hourly volume infused log. Press the **QUIT** softkey to exit the log.

? Event Log

This option allows the event log to be reviewed. It can be enabled/disabled within General Options.

1. Press the **?** button to access the options menu.
2. Select the **EVENT LOG** option using the ⩓/⩔ keys and press the **OK** softkey.
3. Scroll through the log using the ⩓/⩔ keys. Press the **QUIT** softkey to exit the log.

? Drugs and Dosing

The following options enable the unit to be set-up for use with a specific drug and/or dosing protocol. Drugs are pre-configured in a drug library (see Configured Options) to enable rapid selection of the drug name, dosing units and default rate. For increased security using a configured drug, maximum and minimum safety limits are programmable for concentration and dose rates.

Note: The dose infused display is the product of the volume infused and the confirmed concentration. If dosing is confirmed while the volume infused is greater than 0.0ml or a drug was previously selected the dose could be inaccurate. If the dose displayed could be inaccurate the digits will flash on screen. To reset the flashing, the volume needs to be cleared.

To access the Drugs and Dosing menu:

1. Press the **?** button to first access the options menu.
2. Select **DRUGS AND DOSING** from the list using the ⩓/⩔ keys.
3. Press the **OK** softkey to confirm the selection.

Dosing Only:

1. Select **DOSING ONLY** from the list and press **OK**.
2. Enter the dosing information as prompted on the display.
3. Press the **OK** softkey to confirm the dosing information.
4. The **BACK** softkey may be used at any time to return to the previous screen.

See note below *****.

Drug Name Only: (available if Drugs are configured)

1. Select a drug name from the list and press the **OK** softkey.
2. If no protocol is required press the **NO** softkey.
3. If no dosing is required press the **NO** softkey.

Pre-configured drug dosing protocol: (available if Drugs are configured)

1. Select the drug name from the list displayed using the ⩓/⩔ keys. Press the **OK** softkey to confirm the selection.
2. Press the **YES** softkey to select **PROTOCOL**. This will select the pre-defined protocol for the selected drug.
3. Enter the dosing information prompted on the display for the selected drug using the **OK** softkey.

See note below *****.

? Drugs and Dosing (cont.)

User-programmed drug dosing: (available if Drugs are configured)

1. Select the drug name from the list displayed using the ⩓/⩔ keys. Press the **OK** softkey to confirm the selection.
2. Press the **NO** softkey to avoid selecting **PROTOCOL**.
3. Press the **YES** softkey to select **DOSING**. This now enables user-programmed information to be entered.
4. Enter the required dosing information as prompted on the display, using the ⩓/⩔ keys and the **OK** softkey.

See note below *****.

*** Note:** Rate values will flash if either the rate (ml/h) or dose rate are outside the permitted range; and confirmation will not be possible.

Clear drugs and/or dosing: (available if a drug is selected)

1. Select **CLEAR DRUGS AND DOSING** or **CLEAR DRUG NAME** (displayed if a name only is selected) using the ⩓/⩔ keys. Press the **OK** softkey to confirm the selection.

? Dosing Summary

To review currently selected dosing information:

1. Press the **?** button to first access the options menu.
2. Select **DOSING SUMMARY**.
3. Review the information and then press **QUIT**.

Alarms and Warnings

Alarms are indicated by a combination of an audible alarm, flashing alarm indicator and a descriptive message in the display.

1. First press the button to silence the alarm for a maximum of 2 minutes, then check the display for an alarm message. Press **CANCEL** to cancel the alarm message.
2. If the infusion has stopped, rectify the cause of the alarm then press the button to resume the infusion.

Display	*Description and Troubleshooting Guide*
DRIVE DISENGAGED	The drive system has been disengaged during operation. Check the finger grips and the position of the syringe.
OCCLUSION	Pumping pressure has reached the alarm limit. Squeeze the finger grips on the plunger holder to release the drive mechanism and relieve any excessive pressure in the syringe and patient line. Identify and remove the cause of the blockage in the drive, syringe, or administration system before restarting the infusion.
CHECK SYRINGE	Incorrect size of syringe has been fitted, the syringe has not been positioned correctly or has been disturbed during operation. Check the syringe location and the position.
PRESSURE DISC OUT	The pressure disc has been removed from the pressure transducer during the infusion. The infusion will stop. Replace the pressure disc then restart the infusion.
BATTERY LOW	Battery charge low with 30 minutes operation remaining. Battery indicator will flash and after 30 minutes a continuous audible alarm will indicate that the battery is exhausted. Reconnect to the AC power supply to continue operation and charge the internal battery.
BATTERY EMPTY	The internal battery is exhausted. Connect the pump to the AC power supply.
NEAR END OF INFUSION	The pump is nearing the end of the infusion. To modify the time at which the pump will alarm see the General Options section of this manual.
END OF INFUSION	The pump has reached the end of the infusion. A pre-set volume will remain in the syringe to minimise the risk of the infusion of air bubbles into the set. This value can be modified. See the General Options section of this manual.
VTBI DONE	The pre-set Volume To Be Infused is complete.
AC POWER FAIL	AC Power has been disconnected and the pump is operating on battery power. Reconnect AC power supply or press to silence the alarm and continue with battery operation. The alarm will automatically cancel if the AC power supply is reconnected.
Error Code and Message	The alarm system has detected an internal malfunction. Note the malfunction code. Remove unit from service for examination by a qualified service engineer.
ATTENTION (with "3 Beeps")	Three beeps will sound if the unit has been left **ON** for more than 2 minutes (referred to as **CALLBACK** in the log) without starting the operation. Press to silence the alarm for a further 2 minutes. Alternatively press and hold down and wait for 3 beeps in succession, this will delay the warning alarm for 15 minutes.

Alarm Indicator Colour	*Alarms indicated*
AMBER	AC POWER FAIL; NEAR END OF INFUSION; VTBI DONE (KVO or CONTINUE), ATTENTION
RED	All others.

Configured Options

This menu comprises a list of options which are configurable by the user.

1. Turn the pump **OFF**.
2. Whilst holding down the ◈ button turn the pump **ON**.
3. The main display will show **000**. Enter the access code for Configured Options using the ⩓∧/∨⩔ keys, pressing **NEXT** to move through the digits. A full list of access codes can be found in the Technical Service Manual.
4. When the complete code shows on screen, press **OK** to enter. The Configured Options menu will be displayed.

General Options

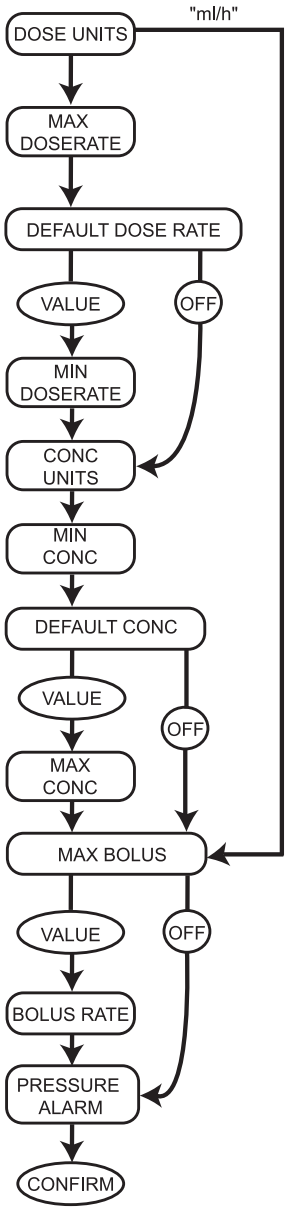
1. Select **GENERAL OPTIONS** from the menu using the ⩓∧/∨⩔ keys and press the **OK** softkey.
2. Select the option you wish to enable/disable or adjust and press the **MODIFY** softkey.
3. When all the desired modifications have been carried out press the **OK** softkey.
4. Either select the next configuration option from the menu or turn the pump **OFF**, returning it to operation as required.

NEOI WARNING	Sets the Near End Of Infusion warning time, as time left to End Of Infusion.
EOI POINT	Sets the End Of Infusion volume.
KVO AT EOI	When enabled the pump will switch to running at the KVO rate when EOI is reached.
KVO RATE	Sets the Keep Vein Open (KVO) rate at which the pump will operate if KVO at EOI is enabled.
BACK OFF	When enabled the motor will reverse to relieve line pressure when an occlusion occurs.
AUTO SAVE	When disabled the patient information is cleared on power up.
RATE LOCK	When enabled the rate can be locked to prevent unwanted changes of the set infusion rate.
QUIET MODE	When enabled the button beeps are muted.
AC FAIL	When enabled the AC Power Failure Alarm will sound if the AC power is disconnected.
RATE TITRATION	When enabled the rate can be changed whilst the pump is infusing.
PRESSURE DISPLAY	Enables / disables the Pressure Icon on the main display.
AUTO PRESSURE	Enables / disables the automatic pressure alarm level option.
PRESSURE DEFAULT	Sets the default occlusion alarm level.
MAX PRESSURE	Sets the maximum pressure limit.
WEIGHT	Sets the default patient weight in kg.
CAP RATE	Sets the maximum value for infusion rate.
PURGE RATE	Sets the purge rate.
PURGE VOLUME LIMIT	Sets the maximum permissible purge volume.
BOLUS	Enables / disables the bolus feature.
DEFAULT BOLUS	Sets the default bolus rate.
CAP BOLUS RATE	Sets the maximum value for bolus rate.
BOLUS VOL LIMIT	Sets the maximum permissible bolus volume.
EVENT LOG DISPLAY	Enables / disables the event log.
NURSE CALL FITTED	Enables Nurse Call (hardware option).
NURSE CALL INVERT	When enabled, the nursecall output is inverted.
RS232 SELECTED	Sets the pumps communications to use RS232 (hardware option).
AUDIO VOLUME	Sets the alarm volume of the pump at high, medium or low.
AUTO NIGHT MODE	Backlight dims between hours 21:00 and 06:00.

Configured Options

Drug Library

1. Select the **DRUG LIBRARY** option from the Configured Options menu and press the **OK** softkey.
2. To enter a new drug in the library press the **NEW** softkey.
3. To enter the name of the new drug use the ⩓/⩔ keys to scroll through the alphabet. To select a letter press the **NEXT** softkey. On completion press the **OK** softkey.
4. Follow the flow chart below, using the ⩓/⩔ keys to select values. Use **OK** to enter selected values and move on to the next stage. The **BACK** softkey may be used at any time to return to the previous screen of the drug library set-up procedure.



5. Review the drug set-up data on the display, then press the **OK** softkey to confirm.
6. To delete a drug from the drug library, select the drug using the ⩓/⩔ keys. Press **MODIFY** then select **YES** twice to delete the drug from the list.

Note: to set a FIXED PROTOCOL set the:-

Max Doserate = Default Doserate = Min Doserate;

Max Conc. = Default Conc. = Min Conc.

Note: use of a protocol in which the Max Bolus is set to OFF will prevent bolus delivery.

Clock Set

1. Select **CLOCK SET** from the Configured Options menu using the ⩓/⩔ keys and press the **OK** softkey.
2. Use the ⩓/⩔ keys to adjust the date displayed, pressing **NEXT** to access the next field.
3. When the correct time and date are displayed press **OK** to return to the Configured Options menu.

Hospital Name

This option allows the user to programme in the name of the hospital, ward or department. This will appear during the power-up display sequence.

1. Select **HOSPITAL NAME** from the Configured Options menu using the ⩓/⩔ keys and press the **OK** softkey.
2. Use the ⩓/⩔ keys to adjust the character displayed, pressing **NEXT** to access the next position.
3. When the correct name is displayed press **OK** to return to the Configured Options menu.

Enable Syringes

This option is used to pre-configure the type and size of syringe permitted for use on the pump. Select all possible syringes which may be used and disable any that should not be used.

1. Select **ENABLE SYRINGES** from the Configured Options menu using the ⩓/⩔ keys and press the **OK** softkey.
2. Use the ⩓/⩔ keys to scroll through the list of syringes, pressing **MODIFY** to enable/disable a syringe brand and individual models within the brand.
3. When all modifications are complete press **OK** to return to the Configured Options menu.

Language

This option is used to set the language of messages shown on the pump display.

1. Select **LANGUAGE** from the Configured Options menu using the ⩓/⩔ keys and press the **OK** softkey.
2. Use the ⩓/⩔ keys to select the language.
3. When the desired language has been selected press **OK** to return to the Configured Options menu.

Contrast

This option is used to set the contrast on the pump display.

1. Select **CONTRAST** from the Configured Options menu using the ⩓/⩔ keys and press the **OK** softkey.
2. Use the ⩓/⩔ keys to select a contrast ratio value. The contrast of the display will change when scrolling through the numbers.
3. When the desired value has been reached press **OK** to return to the Configured Options menu.

Specifications

Infusion Specifications -

Maximum infusion rate can be set as part of the configuration.

0.1ml/h - 150ml/h	5ml syringes
0.1ml/h - 300ml/h	10ml syringes
0.1ml/h - 600ml/h	20ml syringes
0.1ml/h - 900ml/h	30ml syringes
0.1ml/h - 1200ml/h	50ml syringes

The Volume Infused range is 0.0ml - 9990ml.

Bolus Specifications -

Maximum Bolus rates can be set as part of the configuration. Bolus rates are user adjustable.

10 ml/h - 150ml/h	5ml syringes
10 ml/h - 300ml/h	10ml syringes
10 ml/h - 600ml/h	20ml syringes
10 ml/h - 900ml/h	30ml syringes
10 ml/h - 1200ml/h	50ml syringes

The bolus volume limit can be set as part of the configuration.

Minimum: 0.5ml; maximum 25.0ml

Increments of 0.1ml; default 5.0ml

During BOLUS the pressure limit alarms are temporarily increased to their maximum level.

Critical Volume -

The bolus which can occur in the event of a single internal fault condition with a 50 ml syringe is :

Maximum Overinfusion - 0.25ml

Purge Specifications -

The purge rate is limited to the maximum rate for the syringe and can be set as part of the configuration.

100ml/h - 500ml/h.

The purge volume range is 0.5ml - 5ml.

During PURGE the pressure limit alarms are temporarily increased to their maximum level.

Keep Vein Open (KVO) Rate -

0.1 ml/h - 2.5ml/h.

End Of Syringe Rate -

Stop, KVO (0.1ml/h to 2.5ml/h), or set rate if lower than KVO.

Volume To Be Infused (VTBI) -

0.1ml - 100ml, 1min - 24h

VTBI Complete Rate -

Stop, KVO (0.1ml/h to 2.5ml/h), set rate if lower than KVO or continue at set rate.

Near End Of Infusion Alarm -

1min - 15min to end of infusion, or 10% of syringe volume, whichever is smaller.

End Of Infusion (EOI) Alarm -

0.1% - 5% of syringe volume

Classification -

Continuous Mode Operation, Transportable

Maximum Pumping Pressure Limit -

Highest alarm level 1000mmHg (nominal at L-10) Factory Preset, 300mmHg (nominal at L-3).

Occlusion Accuracy without pressure set (% of full scale) -

	Pressure mmHg			
	L-0 approx. 50 mmHg	L-3 approx. 300 mmHg	L-5 approx. 500 mmHg	L-10 approx. 1000 mmHg
Temp. 23°C	±18%	±21%	±23%	±28%

Occlusion Accuracy with pressure set (% of full scale) -

	Pressure mmHg			
	0	25	500	1000
Temp. 23°C	±2%	±4%	±5%	±6%
Temp. 5°C-40°C	±4%	±7%	±7%	±10%

System Accuracy -

Volumetric Mean +/- 2% (nominal).

Derating -

Temperature +/- 0.5% (5 - 40ºC)

High Rates +/- 2.0% (rates > syringe volume/h eg. > 50ml/h in a 50ml syringe.)

Important: System accuracy is +/-2% typical by volume as measured using the trumpet curve test method defined in IEC60601-2-24 at rates of 1.0ml/h (23ºC) and above when the instrument is used with the recommended syringes. Differences in factors such as size and plunger force in compatible syringes can cause variations in accuracy and trumpet curves. See also trumpet curves section in this manual.

Battery Specifications -

Rechargeable sealed NiMH. Automatically charges when the pump is connected to AC power.

Battery life is typically 4h from fully charged @ 5.0ml/h & 20ºC under normal conditions. Charging takes 2½ hours from discharge to 90% charge.

Memory Retention -

The electronic memory of the unit will be retained for more than 6 months when not powered up.

Fuse Type -

2 x T 1.25A, slow blowing.

AC Power Supply -

115/230VAC, 50/60Hz, 20VA (nominal).

Case Material -

GE Cycolac S157 (fire retardant to UL94V-2)

Dimensions -

335 mm (w) x 121 mm (h) x 200 mm (d). Weight: 2.5 kg (excluding power cable).

Alarm Conditions -

Drive Disengaged	Occlusion
Check Syringe	Battery Charge Low
Near End Of Infusion	End of Infusion
VTBI Complete	AC Power Failure
Internal Malfunction	Attention (Nurse Callback)
Pressure Disc Out	

Environmental Specifications -

Operating Temperature	**+5°C - +40°C**
Operating Relative Humidity	**20% - 90%**
Operating Atmospheric Pressure	**700mbar - 1060mbar**
Transport Temperature	**-30°C - +50°C**
Transport Relative Humidity	**10% - 95%**
Transport Atmospheric Pressure	**500mbar - 1060mbar**

Electrical/Mechanical Safety -

Complies with IEC60601-1 (EN60601-1) and IEC60601-2-24 (EN60601-2-24).

EMC -

Complies with EN 60601-1-2 and EN60601-2-24.

Manufacturers Patent Notice -

This instrument is designed and manufactured in the U.K. by ALARIS Medical UK Ltd. Patents applied for. ALARIS Medical UK Ltd reserves the right to alter product specifications without notice.

Registered Design Numbers: 2083560, 2083561, 2083563.

Specifications

Compatible Accessories

The pump is calibrated and labelled for use with single-use disposable Luer-lock syringes. Only use the size and type of syringe specified on the pump display. The full list of permitted syringe models is dependent on the software version of the pump.

	5ml	10ml	20ml	30ml	50ml
IVAC®					✓
AstraZeneca					✓
B Braun Omnifix	✓	✓	✓	✓	✓
B Braun Perfusor			✓		✓
BD Plastipak	✓	✓	✓	✓	✓
BD Perfusor					✓
BD Precise			✓		✓
Codan		✓	✓	✓	✓
Codan Perfusion					✓
Fresenius Injectomat		✓			✓
Nipro	✓		✓	✓	✓
Pentaferte	✓	✓	✓		✓
Rapiject ∗					✓
Sherwood Monoject	✓	✓	✓	✓	✓
Terumo	✓	✓	✓	✓	✓

∗ - The Rapiject 50ml syringe is a specialised syringe with a large diameter barrel. To provide protection against accidental dislodging always ensure the infusion line is secured using the infusion set hook - see Loading a Syringe section.

The pump uses standard, single-use, disposable extension lines and syringes with Luer-lock connectors, of type designed for use on syringe pumps. The user is responsible for verifying the suitability of a product used if it is not an ALARIS® recommended set.

30602N IVAC® 50ml Luer-lock Syringe

G30402 Extension set with occlusion sensing disc
G30653 Opaque extension set with occlusion sensing disc
G30303 Polyethylene extension set with occlusion sensing disc
G30453 Opaque low sorbing syringe extension set with occlusion sensing disc
G30302 PE lined extension set with occlusion sensing disc and clamp
G40015 Standard Extension Set 150cm
G40020 Standard Extension Set 200cm
G40215 Opaque Extension Set 150cm
G40320 Opaque Extension Set 200cm
G40615 Polyethylene Extension Set 150cm
G40620 Polyethylene Extension Set 200cm
G40720 PE lined Extension Set with clamp

It is recommended that the extension sets are changed according to hospital protocols.

Recommended accessories to use in conjunction with the ALARIS® ASENA™ CC are:
◆ ALARIS® ASENA™ Docking Station

Conversion Factor

Dosing Conversion:

1.0 µg = 1000 ng

1.0 mg/h = 24.0 mg/24 h

1.0 mg/min = 60.0 mg/h

1.0 mg = 1000 µg

Volume / Unit Time = Dose Rate / Concentration

1.0 ml/h = 1.0 mg/h / 1.0 mg/ml

The formula is:

Volume/Rate =

$$\frac{(\text{.....µg/kg/min}) \times (\text{.....kg}) \times (60\ \text{min/h})}{\text{conc. in mg/ml} \times 1000\ \text{µg/mg}} = \frac{\text{µg/h}}{\text{µg/ml}} = \text{ml/h}$$

Drug Units Available:

ml/h, ng/min, ng/kg/min

µg/min, µg/kg/min, µg/h, µg/kg/h, µg/24h, µg/kg/24h

mg/min, mg/kg/min, mg/h, mg/kg/h, mg/24h, mg/kg/24h,

g/h, g/24h, U/min, U/kg/min, U/h, U/kg/h, U/24h, U/kg/24h,

kU/24h, mmol/h

The availability of drug dose units is dependent on the software version of the pump.

Maintenance

Routine Maintenance Procedures

To ensure that this instrument remains in good operating condition, it is important to keep it clean and carry out the routine maintenance procedures described below. All servicing should only be performed by a qualified service engineer with reference to the Technical Service Manual (TSM) for this product (TSM reference: 1000PB01120).

Refer to the Technical Service Manual for the access code for technical service features.

Interval	*Routine Maintenance Procedure*
As required	Thoroughly clean external surfaces of the pump before and after prolonged period of storage.
At least once per year	1. Inspect AC power supply plug and cable for damage. 2. Perform functional tests as outlined in the Technical Service Manual. 3. Operate the pump on battery power until the battery low alarm then charge the battery to confirm battery operation and charging.

Cleaning and Storage

Before the transfer of the pump to a new patient and periodically during the use, clean the pump by wiping over with a lint-free cloth lightly dampened with warm water and a standard disinfectant / detergent solution.

Disinfectants which are known to be corrosive to metals must not be used. These include disinfectant types NaDcc (such as Presept™), Hypochlorites (such as Chlorasol™), Aldehydes (such as Cidex™), and Cationic Surfactants (such as Benzalkonium Chloride). Use of Iodine (such as Betadine®) will cause surface discoloration. Concentrated Isopropyl alcohol based cleaners will degrade plastic parts.

The syringe and extension line are disposable single use items and should be discarded after use according to their manufacturers instructions.

If the pump is to be stored for an extended period it should be first cleaned and the internal battery fully charged. Store in a clean, dry atmosphere at room temperature and, if available, employ the original packaging for protection.

Once every 3 months during storage, carry out functional tests as described in the Technical Service Manual and ensure that the internal battery is fully charged.

Important: Before cleaning always switch OFF and disconnect from the AC power supply. Never allow liquid to enter the casing and avoid excess fluid build up on the pump. Do not use aggressive cleaning agents as these may damage the exterior surface of the pump. Do not steam autoclave, ethylene oxide sterilise or immerse this pump in any fluid.

Ensure the pressure transducer is free from residues, which may prevent correct operation of the disc detector.

Replacing the AC Fuses

If the pump continually illuminates the battery symbol and the AC power indicator light does not illuminate when the pump is connected to the AC power supply and switched ON, suspect that either the power supply fuse in the AC plug, or the internal fuses, have blown.

First check the power supply fuse in the AC mains plug. If the AC power indicator light does not illuminate remove the pump from service.

It is recommended that only a qualified service engineer replaces the AC fuses. For further information regarding the replacement of internal AC fuses refer to the Technical Service Manual.

Battery Operation

The internal rechargeable battery allows continued operation when the AC power is unavailable, for example during patient transfer or AC power failure. A fully charged battery will provide over 4 hours operation at typical infusion rates. From the battery low alarm it will take about 2 hours to fully recharge when reconnected to the AC power supply, whether the unit is in use or not.

The battery is maintenance free, sealed Nickel Metal Hydride and requires no routine servicing. However, to achieve optimum operation, ensure that the battery is fully recharged after full discharge, before storage, and at regular 3 month intervals during storage.

Charge retention will eventually degrade. Where retention is critical the internal battery should be replaced every 3 years.

It is recommended that only a qualified service engineer replaces the battery. For further information regarding the replacement of batteries refer to the Technical Service Manual.

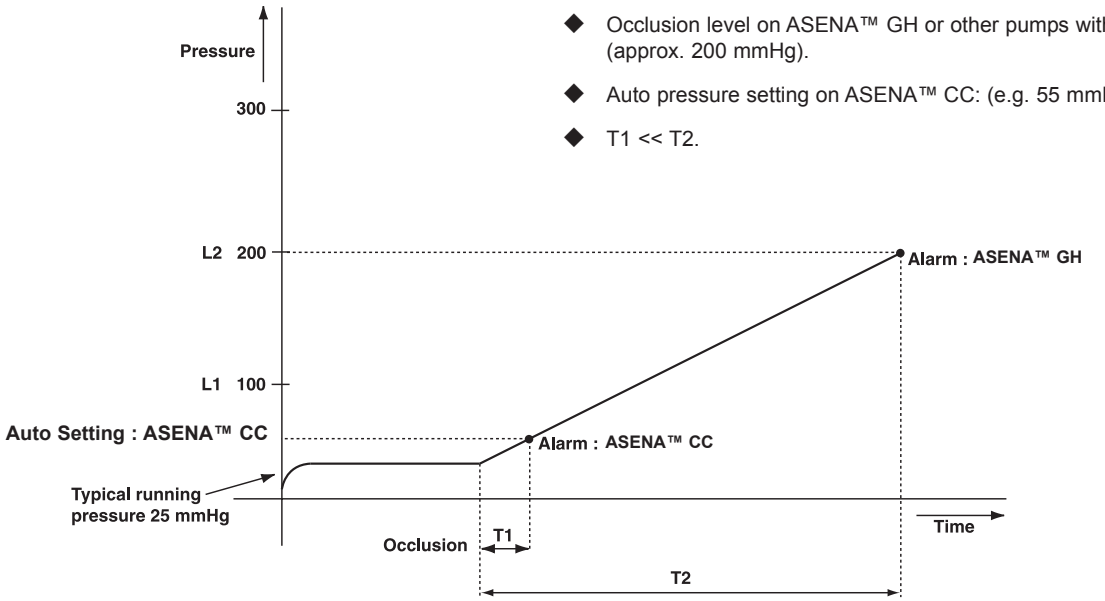
Disposal

The pump should be disposed of taking environmental factors into consideration. To ensure no risk or hazard remove the internal rechargeable battery and the Nickel Metal Hydride battery from the control board and dispose of as outlined by the local country regulations. Do not send back to the manufacturer. All other components can be safely disposed of in the normal manner.

Occlusion Pressure Limits

Time to alarm following occlusion is achieved in less than 30 minutes at rates of 1 ml/h and higher by the appropriate selection of occlusion levels.

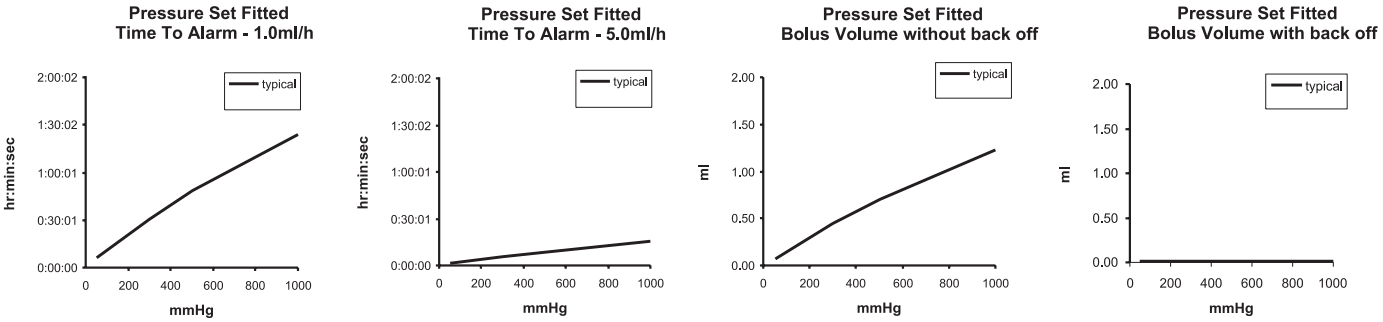
Use of the dedicated pressure set is recommended. Its use permits the occlusion alarm pressure (mmHg) to be set accurately, with a small operating margin between the alarm and normal infusion pressures. When using infusion pumps without a pressure set, line pressures are estimated from pumping force. For this reason the occlusion alarm needs to be set with an operating margin of at least one level between the alarm and normal infusion levels. The ability to set a small operating margin permits short time to alarm and small potential bolus volumes to be achieved. Bolus volumes can be minimised as described in the Alarms and Warnings - Occlusion or by enabling the back off general option.



- Occlusion level on ASENA™ GH or other pumps with occlusion levels: L2 (approx. 200 mmHg).
- Auto pressure setting on ASENA™ CC: (e.g. 55 mmHg).
- T1 << T2.

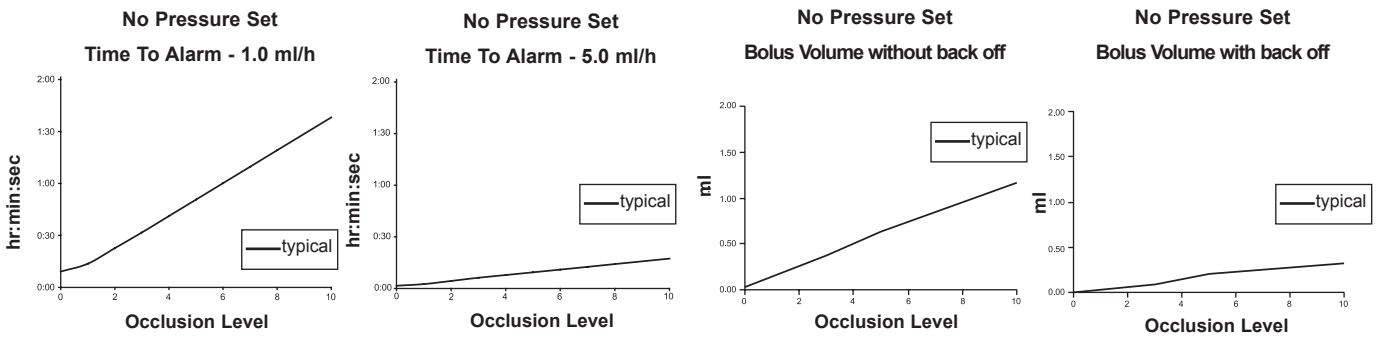
With IVAC® Pressure Set fitted, G30402 -

The following graphs show the typical values for time to alarm and bolus volume that can be expected in the event of an occlusion when the BD Plastipak 50 ml syringe is selected with a G30402 extension set with occlusion sensing disc.



Without IVAC® Pressure Set fitted -

The following graphs show the typical values for time to alarm and bolus volume that can be expected in the event of an occlusion when the BD Plastipak 50 ml syringe is selected with a G40020B standard extension set.



* Tests at low alarm levels may alarm immediately - the force at these levels is commonly less than the friction in the syringe (with no additional fluid pressure). The result is that the pressure relating to the low forces will be less than the nominal quoted occlusion pressure.

** Bolus volume following occlusion will be minimised by the back off feature if enabled. The back off will reduce the line pressure by removing the volume stored in the occluded line and deduct this volume from the volume infused. Back off will terminate if the pressure reaches the level recorded by the pump when the infusion was last started, or a maximum back off volume has been withdrawn from the infusion line. It will also terminate if the volume infused reaches 0.0ml, or a VTBI reaches the value at which it was set.

Test Routines

The test routines are designed to allow confirmation of many of the pump functions, defaults and calibrations without requiring internal inspection. They do not represent a full calibration check.

1. Turn the pump **OFF**.
2. Whilst holding down the ◈ button turn the pump **ON**.
3. The main display will show **000**. Enter the access code for the Test Routines using the ⏫⏶/⏷⏬ keys, pressing **NEXT** to move through the digits. See the Technical Service Manual for a full list of access codes.
4. When the complete code shows on screen, press **OK** to enter.
5. The pump will now display a list of tests available. Each one can be selected using the ⏫⏶/⏷⏬ keys. A Full Test is available.

Important: See the Technical Service Manual for a complete list of the test procedures, access codes and calibration procedures.

IrDa / RS232 / Nursecall Feature

The RS232 / Nursecall feature is an optional feature on ALARIS® ASENA™ Syringe Pumps. It allows the pump to be monitored remotely and/or controlled via a suitable central monitoring or computer system.

When the pump is started by a command from the serial interface, communication must take place over the serial interface, a communication must take place every 15 seconds or the pump will alarm, display communications failure and stop infusing. This failure protects against failure of the communications, including the removal of the RS232 cable.

Important: The nursecall interface provides a remote backup to the internal audible alarm. It should not be relied upon to replace monitoring of the internal alarm.

Refer to the Technical Service Manual for further information regarding the RS232 interface. Since it is possible to control the syringe pump using the RS232 interface at some distance from the pump and hence remote from the patient, responsibility for the control of the pump is vested in the software run on the computer control system.

The assessment for the suitability of any software used in the clinical environment to control or receive data from the pump lies with the user of the equipment. This software should include detection of the disconnection or other failure of the RS232 cable. The protocol is detailed in the Technical Service Manual and is for general information only.

Any connected analogue and digital components are required to meet EN60950 for data processing and EN60601 for medical devices. Anyone connecting additional devices to the signal input or output is a system configurator and responsible for meeting the requirements of the system standard EN60601-1-1.

RS232 / Nursecall Connection Data

Nursecall Specification -

Connector	D Type - 9 Pin
TXD/RXD	EIA RS232-C Standard
TXD Output Voltage Range	Minimum: -5V (mark), +5V (space) Typical: -7V (mark), +7V (space) with 3K load to ground
RXD Input Voltage Range	-30V - +30V max.
RXD Input Thresholds	Low: 0.6V minimum / High: 3.0V maximum
RXD Input Resistance	3K minimum
Enable	Active, Low:-7V to -12V Active, High:+7V to +12V, powers up the isolated RS232 circuitry Inactive: Floating/open circuit, allows isolated RS232 circuitry to power down.
Isolation Socket/Pump	1.5kV (dc, or ac peak)
Baud Rate	38.4 kBaud
Start Bits	1 Start Bit
Data Bits	8 Data Bits
Parity	Odd Parity / No Parity
Stop Bits	1 stop bit
Nurse Call Relay Contacts	Pins 1, 8 + 9, 30V dc, 1A rating

Typical Connection Data -

1 Nursecall (Relay) Normally Closed

2 Transmit Data (TXD) Output

3 Received Data (RXD) Input

4 Power Input (DSR)

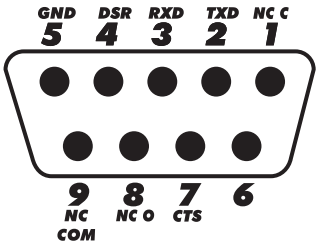
5 Ground (GND)

6 Not used

7 Power Input (CTS)

8 Nursecall (Relay) Normally open

9 Nursecall (Relay) Common



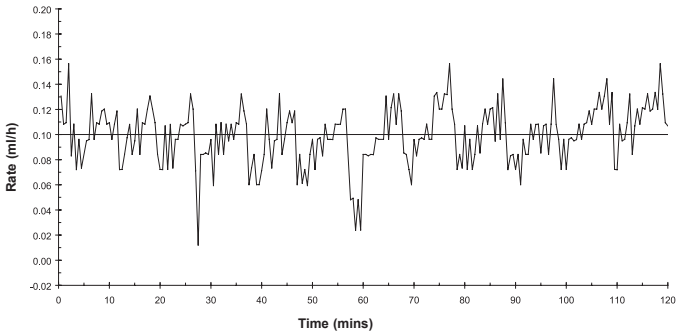
IrDA

Baud Rate	38.4 kBaud

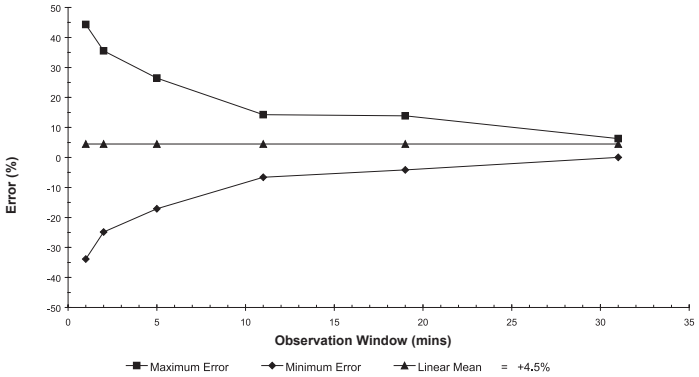
Trumpet Curves & Start-up Curves

In this instrument, as with all infusion systems, the action of the pumping mechanism and variations in individual syringes cause short-term fluctuations in rate accuracy.
The following curves show typical performance of the system in two ways: 1) the delay in onset of fluid flow when infusion commences (start-up curves), and 2) the accuracy of fluid delivery over various time periods is measured (trumpet curves).
The start-up curves represent continuous flow versus operating time from the start of the infusion. They exhibit the delay in onset of delivery due to mechanical compliance and provide a visual representation of uniformity. Trumpet curves are derived from the second hour of this data. Tests performed per IEC60601-2-24 standard.
Trumpet curves are named for their characteristic shape. They display discrete data averaged over particular time periods or 'observation windows', not continuous data versus operating time. Over long observation windows, short term fluctuations have little effect on accuracy as represented by the flat part of the curve. As the observation window is reduced, short term fluctuations have greater effects as represented by the "mouth" of the trumpet.
Knowledge of system accuracy over various observation windows may be of interest when certain drugs are being administered. Short term fluctuations in rate accuracy may have clinical impact depending on the half-life of the drug being infused, therefore the clinical effect cannot be determined from the trumpet curves alone.
Important: Start-up and trumpet curves may not be indicative of operation under negative pressure.
Differences in factors such as size and plunger force in compatible syringes produced by other manufacturers can cause variations in accuracy and trumpet curves as compared to those represented. Additional curves for compatible syringes are available upon written request.
For applications where flow uniformity is a concern, rates of 1.0ml/hr or above are recommended.

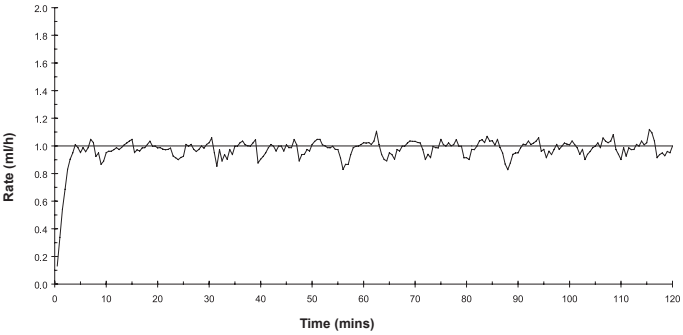
Start-up Trend. BD Plastipak 50ml @ 0.1ml/h



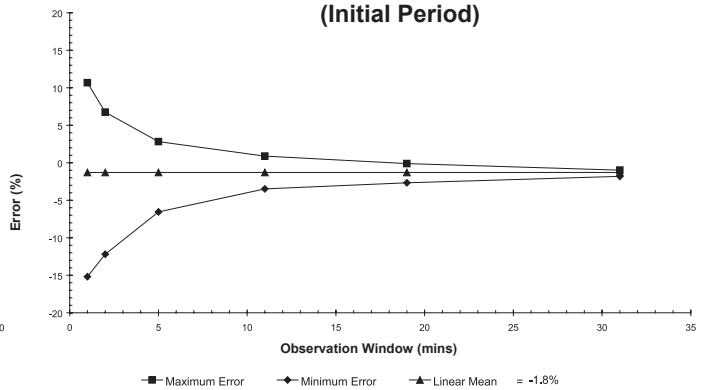
Trumpet Curve. BD Plastipak 50ml @ 0.1ml/h (Initial Period)



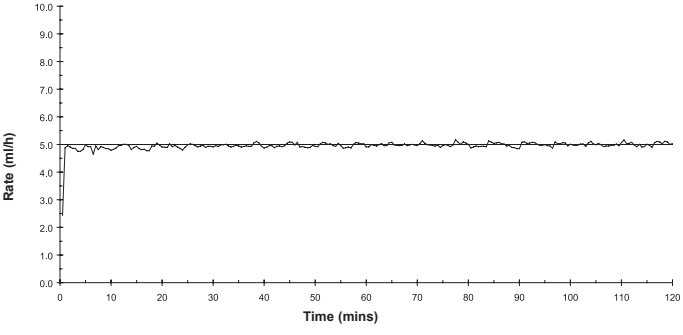
Start-up Trend. BD Plastipak 50ml @ 1.0ml/h



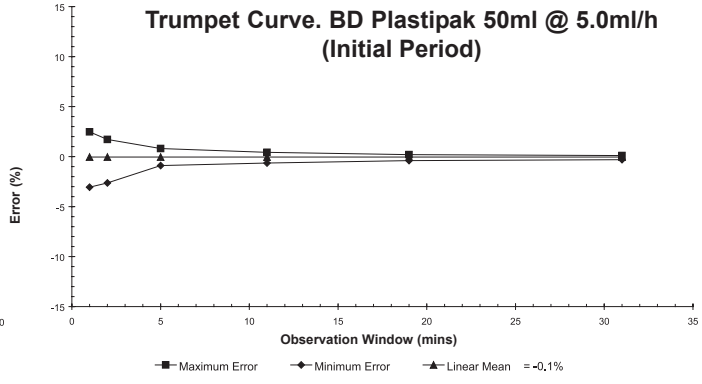
Trumpet Curve. BD Plastipak 50ml @ 1.0ml/h (Initial Period)



Start-up Trend. BD Plastipak 50ml @ 5.0ml/h



Trumpet Curve. BD Plastipak 50ml @ 5.0ml/h (Initial Period)



Service Contacts

For service contact your local ALARIS Medical Systems® Affiliate Office or Distributor. ALARIS Medical Systems® Service Centre Addresses:

AE

ALARIS Medical Systems Middle East Office,
PO Box 5527,
Dubai, United Arab Emirates.
Tel: (971) 4 28 22 842
Fax: (971) 4 28 22 914

AU

ALARIS Medical Australia Pty Ltd,
8/167 Prospect Highway,
Seven Hills,
NSW 2147.
Tel: (61) 2 9838 0255
Fax: (61) 2 9674 4444

BE

ALARIS Medical Belgium B.V.,
Otto De Mentockplein 19,
1853 Strombeek - Bever.
Tel: (32) 2 263 09 75
Fax: (32) 2 267 99 21

CA

ALARIS Medical Canada, Ltd.
5975 Whittle Road,
Suite #120,
Mississauga, Ontario L4Z 3N1.
Tel: (1) 905-507-1131
Fax: (1) 905-507-6664

CN

ALARIS Medical Systems Office,
Suite 401 No. 88 Chang Su Road,
Shanghai PC 200040,
China.
Tel: (56) 8621-62488591
Fax: (56) 8621-62482567

DE

ALARIS Medical Deutschland, GmbH,
Pascalstr. 2,
52499 Baesweiler,
Deutschland.
Tel: (49) 2401 604 0
Fax: (49) 2401 604 121

ES

ALARIS Medical Espãna, S.L.,
Avenida Valdeparro 27,
Edifico Alcor,
28108 - Alcobendas, Madrid, España
Tel: (34) 91 657 20 31
Fax: (34) 91 657 20 42

FR

ALARIS Medical France, S.A.,
95, rue Péreire,
78105 St Germain en Laye Cedex.
Français.
Tél: (33) 1 39 10 50 09 / 10
Fax: (33) 1 30 61 22 23

GB - Manufacturer's Address:

ALARIS Medical UK Ltd.,
The Crescent, Jays Close,
Basingstoke,
Hampshire, RG22 4BS.
Tel: (44) 0800 389 6972
Fax: (44) 1256 388 411

HU

ALARIS Medical Hungary
Döbrentei tér 1.
H-1013 Budapest
Hungary
Tel: (+361) 4880232
Fax: (+361) 2015987

IT

ALARIS Medical Italia S.P.A.
Via Ticino 4,
50019 Sesto Fiorentino,
Florence, Italia.
Tél: (39) 055 34 00 23
Fax: (39) 055 34 00 24

NL

ALARIS Medical Holland, B.V.,
Kantorenpand "Hoefse Wing",
Printerweg 5,
3821 AP Amersfoort.
Nederland
Tel: (31) 33 455 51 00
Fax: (31) 33 455 51 01

NO

ALARIS Medical Norway A/S
Hamang Terrasse 55,
PO Box 248,
N-1301 Sandvika.
Tel: (47) 67 57 58 50
Fax: (47) 67 57 58 60

NZ

ALARIS Medical NZ Ltd.,
Unit 14, 13 Highbrook Drive,
East Tamaki, Auckland,
New Zealand.
Tel: (64) 9 273 3901
Fax: (64) 9 273 3098

SE

ALARIS Medical Nordic, AB
Hammarbacken 4B,
191 46 Sollentuna
Sverige.
Tel: (46) 8 544 43 200
Fax: (46) 8 544 43 225

SG

ALARIS Medical Systems Office,
65 Chulia Street,
#40-04 OCBC Centre,
Singapore 049513.
Tel: (65) 5345351
Fax: (65) 5345516

US

ALARIS Medical Systems, Inc.
10221 Wateridge Circle
San Diego, CA 92121.
Tel: (1) 800 854 7128
Fax: (1) 858 458 6179

ZA

ALARIS Medical S.A. (Pty) Ltd.,
Unit 2 Oude Molen Business Park,
Oude Molen Road, Ndabeni, Cape Town
7405.
Tel: (27) 0860 597 572
Fax: (27) 21 5107567

B D, PLASTIPAK and PRECISE are trademarks of Becton-Dickinson, Inc.
OMNIFIX is a trademark of B Braun Melsungen A.G.
PERFUSOR is a trademark of B Braun Melsungen A.G.
MONOJECT is a trademark of Sherwood Medical
INJECTOMAT is a trademark of Fresenius A.G.

Document History

Revision	*CO Number*	*Date*	*Description of Change/Changed by*	*Software Revision*
1.0	2472	11/01/01	Initial release - Sian Dorey	V1.5
2.0	4014	05/09/02	CE Mark Update - SED	V1.5 and above

Warranty

ALARIS Medical Systems® (hereinafter referred to as "ALARIS") warrants that:

(A) Each new instrument (pump, controller or peripheral instrument) is free from defects in material and workmanship under normal use and service for a period of one year from the date of delivery by ALARIS to the first purchaser.

(B) Each new accessory is free from defects in material and workmanship under normal use and service for a period of ninety (90) days from the date of delivery by ALARIS to the first purchaser.

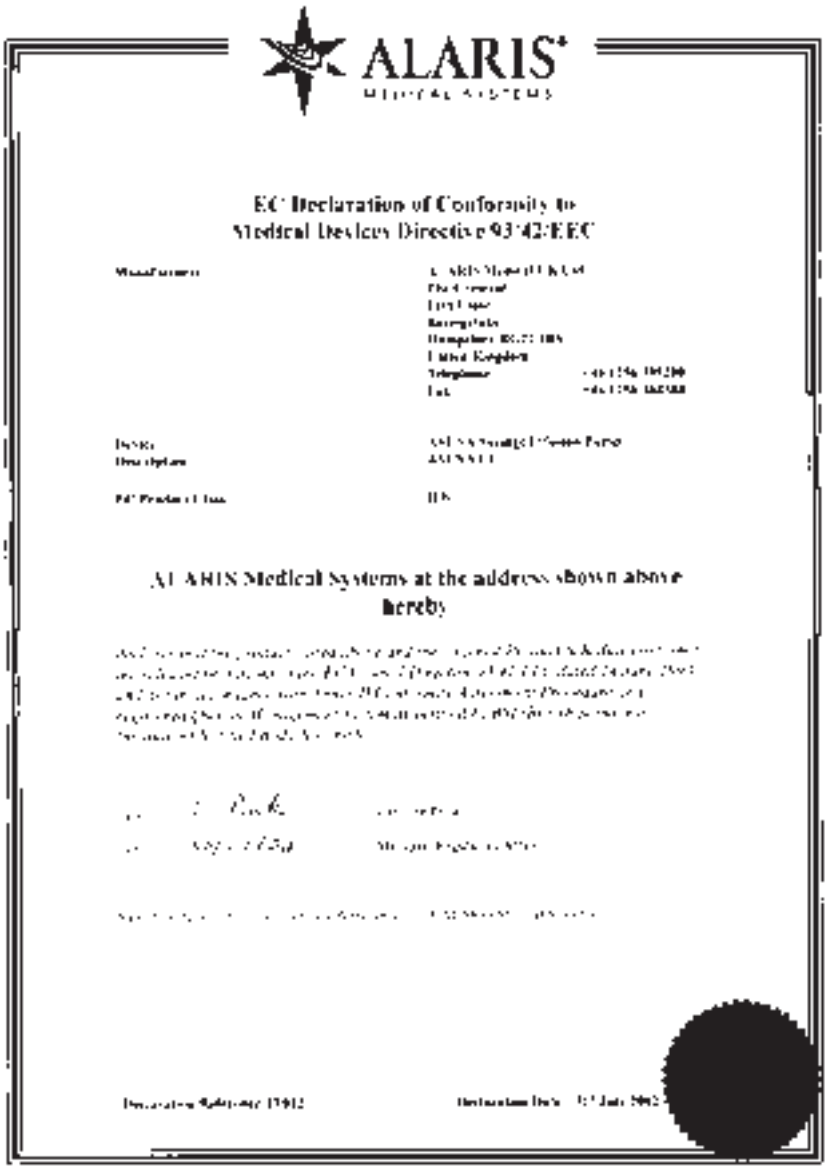
If any product requires service during the applicable warranty period, the purchaser should communicate directly with the local ALARIS service centre to determine appropriate repair facility. Repair or replacement will be carried out at ALARIS's expense, subject to the terms of this warranty. The product requiring service should be returned promptly, properly packed, and postage prepaid. Loss or damage in return shipment to ALARIS shall be at purchaser's risk.

In no event shall ALARIS be liable for any incidental, indirect or consequential damages in connection with the purchase or use of any ALARIS product. This warranty shall not apply to, and ALARIS shall not be responsible for, any loss arising in connection with the purchase or use of any ALARIS product which has been repaired by anyone other than an authorised ALARIS service representative or altered in any way so as, in ALARIS's judgement, to affect its stability or reliability, or which has been subject to misuse or negligence or accident, or which has had the serial or lot number altered, effaced or removed, or which has been used otherwise than in accordance with the instructions furnished by ALARIS.

This warranty is in lieu of all other warranties, express or implied, and of all other obligations or liabilities on ALARIS's part, and ALARIS neither assumes nor authorises any representative or other person to assume for it any other liability in connection with the sale of ALARIS products. See packing inserts for international warranty.

ALARIS DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FOR FUNCTION OF FITNESS FOR A PARTICULAR PURPOSE OR APPLICATION.

Declaration of Conformity



EC Declaration of Conformity to
Medical Devices Directive 93/42/EEC

ALARIS Medical Systems at the address shown above
hereby

Pumps, Accessories and Spare Parts - Order Form

Please complete the details below and either fax or post this form to ALARIS Medical Systems® or your nearest authorised distributor (see page 18).

ALARIS® ASENA™ Infusion System

The complete range of products in the ALARIS® ASENA™ product family are:

Part Number	Description	Quantity
80013UN01	ALARIS® ASENA™ GS Syringe Pump	
80023UN01	ALARIS® ASENA™ GH Syringe Pump	
80033UND1	ALARIS® ASENA™ CC Syringe Pump	
80083UN00	ALARIS® ASENA™ DS (no comms)	

Syringes and Extension Sets

The ASENA™ CC uses standard, single-use, disposable extension lines and syringes with Luer-lock connectors, of type designed for use on syringe pumps.

Part Number	Description	Quantity
30602N	IVAC® 50ml Luer-lock Syringe	
G30402	Extension set with occlusion sensing disc	
G30653	Opaque extension set with occlusion sensing disc	
G30303	Polyethylene extension set with occlusion sensing disc	
G30453	Opaque low sorbing syringe extension set with occlusion sensing disc	
G30302	PE lined extension set with occlusion sensing disc and clamp.	
G40015	Standard Extension Set 150cm	
G40020	Standard Extension Set 200cm	
G40215	Opaque Extension Set 150cm	
G40320	Opaque Extension Set 200cm	
G40615	Polyethylene Extension Set 150cm	
G40620	Polyethylene Extension Set 200cm	
G40720	PE lined Extension Set with clamp	

Service Equipment

This ASENA™ CC has been designed to allow simple and low cost servicing. Standard components are employed where possible so that no special test or calibration tools are required. However, the following items may be useful for general servicing.

Part Number	Description	Quantity
0000TG00020	Occlusion Test Gear	
0000TG00080	Linear Speed Test Gear	
0000JG00047	Cradle, Support (front)	
0000TG00076	Spacer, syringe sizing ASENA™	
0000TG00078	Spacer, Linear Calibration ASENA™	
1000SP00172	Programming Kit ASENA™	

Spare Parts

A comprehensive list of spare parts for this pump is included within the Technical Service Manual. This can be ordered from ALARIS Medical Systems®, or authorised distributor. For the part number please refer to summary parts list below:

Part Number	Description	Quantity
1000PB00991	Directions for Use (GB) ALARIS® ASENA™ CC	
1000PB01120	Technical Service Manual ALARIS® ASENA™ Series Syringe Pumps	
1000SP01080	Internal Battery Pack	
1001FAOPT91	AC Power Lead - UK	
1001FAOPT92	AC Power Lead - European	
1001FAOPT93	AC Power Lead - Unterminated	

Name: ..... **Company Name:** .....

.....

Address: .....

.....

..... **Postcode:** .....

Telephone: ..... **Facsimile:** .....

Signature: .....

Date: .....

Visit our website: **www.alarismed.com**

ALARIS® MEDICAL SYSTEMS